JAIN COLLEGE V V Puram **I PUC MOCK PAPER – January. 2025**	**Course:** I PUC **Subject:** Biology **Max.Marks :** 70 **Duration:** 3hr

1. The inner wall of the pollen grain is
   (a) non-continuous (b) thick
   (c) hard (d) pecto-cellulosic
2. The rupture of Graafian follicle results in the release of
   (a) ootid and second polar body (b) ovum and first polar body
   (c) secondary oocyte and corpus luteum (d) ootid and corpus luteum
3. Hormones secreted by the placenta to maintain pregnancy are
   (a) hCG, hPL, progestogens, oestrogens
   (b) hCG, hPL, oestrogens, relaxin, oxytocin
   (c) hCG, hPL, progestogens, prolactin
   (d) hCG, progestogens, oestrogens, glucocorticoids
4. A single gene influencing both seed shape and starch grain size is an example of
   (a) co-dominance (b) pleiotropy (c) multiple alleles (d) dominance
5. Ectopic pregnancies are referred to as
   (a) implantation of embryo at site other than uterus
   (b) implantation of defective embryo in the uterus
   (c) pregnancies terminated due to hormonal imbalance
   (d) pregnancies with genetic abnormal
6. Satellite DNA is important because it
   (a) codes for proteins needed in cell cycle.
   (b) shows high degree of polymorphism in population and also the same degree ofpolymorphism in an individual, which is heritable from parents to children.
   (c) does not code for proteins and is same in all members of the population.
   (d) codes for enzymes needed for DNA replication.
7. In eukaryotic organisms, the regulation of gene expression could be exerted at
   (a) transcriptional and processing level only
   (b) transport of mRNA from nucleus to the cytoplasm
   (c) translational level only
   (d) transcriptional and translational level only.
8. The factor that leads to Founder effect in a population is
   (a) natural selection (b) genetic recombination
   (c) mutation (d) genetic drift
9. Which part of poppy plant is used to obtain the drug "smack"?
   (a) Flowers (b) Latex (c) Roots (d) Leaves
10. Which of the following in sewage treatment removes suspended solids ?
    (a) Tertiary treatment (b) Secondary treatment
    (c) Primary treatment (d) Sludge treatment
11. Conversion of milk to curd improves it nutritional value by increasing the amount of
    (a) vitamin-D (b) vitamin-A (c) vitamin-B12 (d) vitamin-E

12. A gene, whose expression helps to identify transformed cells is known as
    (a) selectable marker (b) vector
    (d) structural gene (c) plasmid
13. The first clinical gene therapy was done for the treatment of
    (a) AIDS
    (b) cancer
    (c) cystic fibrosis
    (d) SCID (Severe Combined Immuno Deficiency resulting from deficiency of ADA)
14. Mycorrhizae are the example of
    (a) fungistasis (b) amensalism (c) antibiosis (d) mutualism
15. Red list contains data or information on
    (a) All economically important plants
    (b) plants whose products are in international trade
    (c) threatened species
    (d) marine vertebrates only
    (Klinefelter's syndrome, Natural selection, angiosperms, Competition
    fertilisation)
16. Double fertilisation is exhibited by.....
17. ..... is the genetic disorder in which an individual has an overall masculine development, gynaecomastia and is sterile.
18. In human females, meiosis-II is not completed until .....
19. Industrial melanism is an example of .,.....
20. ..... interaction in which both partners are adversely affected

II. PART- B

21. Papaver and Michelia both have multicarpellary ovaries. How do they differ from each other?
22. Name an oral pill used as a contraceptive by human females. Explain how does it prevent pregnancy.
23. Give two reasons why Mendel selected garden pea for his experiments? Give the biological name of this plant.
24. Differentiate between template strand and coding strand.
25. Are the wing of a bird and the forelimb of a horse homologous or analogous? Name the type of evolution that explains the development of such structures.
26. How do you visualise DNA on an agarose gel?
27. What are Continuous breeders? Give an example.

III. PART-C

28. (a) Name the parts of an angiosperm flower in which development of male and female gametophyte take place.
    (b)What is palynology?
29. Give the schematic representation of Oogenesis.
30. What are the properties of genetic material?
31. Explain the different methods of cancer treatment.
32. Explain the key concepts in the evolution theory of Darwin.
33. Why are some molecules called bioactive molecules? Give two examples of such molecules.

34. Why is the length of a food chain in an ecosystem generally limited to 3-4 trophic levels? Explain with an example.

IV. PART -Section -1

35. What is meant by the term 'hot spots' in biodiversity? List two criteria used for determining a 'hot spot'. Name two hot spots of India.
36. Draw a neat labelled diagram of pBR322.
37. Draw a neat labelled diagram of human male reproductive system.
38. Explain the law of segregation with an example.
39. Give the schematic representation of replication of HIV virus.
40. Write the salient features of human genome project.
41. Explain the process of translation in eukaryotes.
42. Draw a neat labelled diagram of biogas plant.
43. Explain the technique of gene therapy for ADA deficiency.
44. (a) Explain primary productivity and the factors that influence it.
45. (b) Describe how do oxygen and chemical composition of detritus control decomposition.

V. Section -II

46. Explain the development of embryo in angiosperms.
47. Explain the regulation of lac operon.
48. Describe the role of microbes as biofertilizers.